

Department of Computer Science and Engineering



Annasaheb Dange College of Engineering and Technology,  
Ashta

Department of Computer Science & Engineering



Annasaheb Dange College of Engineering and Technology, Ashta

(An Autonomous Institute affiliated to Shivaji University, Kolhapur.)

## Structure and Curriculum

COMPUTER SCIENCE AND ENGINEERING

F.Y. B.Tech CSE

SEM-I to SEM-II

Revision-2

(Academic Year 2023-24)



**Annasaheb Dange College of Engineering and Technology Ashta**  
**Department of Computer Science and Engineering**



**Teaching and Evaluation Scheme**

**F. Y. B. Tech Semester I**

Course Code	Course Name	Teaching Scheme				THEORY							PRACTICAL				GRAND TOTAL			
						ISE		MSE+ ESE			Total	Min	ISE		ESE			Total	Min	
		L	T	P	Credits	Max	Min	MSE	ESE	Min			Max	Min	Max	Min				
2CSBS101	Applied Mathematics - I	3	1	-	4	40	16	30	30	24	100	40	-	-	-	-	-	-	100	
2CSBS102	Applied Physics and Chemistry	4	-	-	4	40	16	30	30	24	100	40	-	-	-	-	-	-	100	
2CSPC103	Data Communication	3	-	-	3	40	16	30	30	24	100	40	-	-	-	-	-	-	100	
2CSES104	Engineering Graphics	2	-	-	2	40	16	30	30	24	100	40	-	-	-	-	-	-	100	
2CSHS105	Professional Communication Skills	-	-	4	2	-	-	-	-	-	-	-	50	20	-	-	50	20	50	
2CSBS106	Applied Physics and Chemistry Lab	-	-	2	1	-	-	-	-	-	-	-	50	20	-	-	50	20	50	
2CSES107	Engineering Graphics Lab	-	-	2	1	-	-	-	-	-	-	-	50	20	-	-	50	20	50	
2CSES108	Design Thinking Lab	1	-	2	2	-	-	-	-	-	-	-	50	20	-	-	50	20	50	
2CSHS109	Value Added Course - I	-	-	2	1	-	-	-	-	-	-	-	50	20	-	-	50	20	50	
		<b>13</b>	<b>1</b>	<b>12</b>	<b>20</b>															<b>650</b>
	<b>Total Contact Hours</b>	<b>26</b>																		

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**Director**

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**Executive Director**



**Annasaheb Dange College of Engineering and Technology Ashta**  
**Department of Computer Science and Engineering**



**Teaching and Evaluation Scheme**

**F. Y. B. Tech Semester II**

Course Code	Course Name	Teaching Scheme				THEORY								PRACTICAL				GRAND TOTAL		
						ISE		MSE+ ESE			Total	Min	ISE		ESE		Total		Min	
		L	T	P	Credits	Max	Min	MSE	ESE	Min			Max	Min	Max	Min				
2CSBS110	Applied Mathematics - II	3	1	-	4	40	16	30	30	24	100	40	-	-	-	-	-	-	-	100
2CSPC111	Computer Networks	3	-	-	3	40	16	30	30	24	100	40	-	-	-	-	-	-	-	100
2CSES112	Basic Electrical and Electronics	3	-	-	3	40	16	30	30	24	100	40	-	-	-	-	-	-	-	100
2CSBS113	Biology for Engineers	2	-	-	2	40	16	30	30	24	100	40	-	-	-	-	-	-	-	100
2CSPC114	Computer Networks Lab	-	-	2	1	-	-	-	-	-	-	-	50	20	-	-	50	20	50	50
2CSES115	Basic Electrical and Electronics Lab	-	-	2	1	-	-	-	-	-	-	-	50	20	-	-	50	20	50	50
2CSBS116	Biology for Engineers Lab	-	-	2	1	-	-	-	-	-	-	-	50	20	-	-	50	20	50	50
2CSES117	Computer Programming	2	-	4	4	-	-	-	-	-	-	-	50	20	50	20	100	40	100	100
2CSHS118	Value Added Course - II	-	-	2	1	-	-	-	-	-	-	-	50	20	-	-	50	20	50	50
		<b>13</b>	<b>1</b>	<b>12</b>	<b>20</b>															<b>700</b>
	<b>Total Contact Hours</b>	<b>26</b>																		

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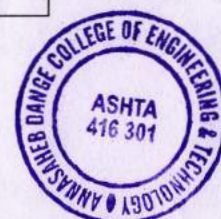
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Class	F.Y. B.Tech., Sem.- I
Course Code and Course Title	2CSBS101 Applied Mathematics-I
Prerequisite	---
Teaching Scheme: Lecture/Tutorial	03/01
Credits	04
Evaluation Scheme: ISE/MSE /ESE	40/30/30

**Course Outcomes:** After successful completion of this course, the students will be able to:

2CSBS101_1	Solve the system of linear equations by using matrix method and numerical techniques.
2CSBS101_2	Calculate Eigen values and Eigen vectors and power of matrix by using Cayley-Hamilton theorem.
2CSBS101_3	Fit the curves for bivariate data by applying least square techniques.
2CSBS101_4	Apply Taylor series to find the expansion of functions.
2CSBS101_5	Compute the $n^{\text{th}}$ power and roots of the complex number by using De-Moivre's Theorem.

Course Contents:		Hrs.
<b>Unit 1</b>	<b>Matrices and Solution of Linear System Equations:</b> Rank of a matrix, Normal form of a matrix, echelon form, Consistency of linear system of equations (system of homogeneous and non homogeneous linear equation)	07
<b>Unit 2</b>	<b>Eigen Values and Eigen Vectors:</b> Vectors, Linear dependence and linear independence of vectors, Eigen values, Properties of Eigen values, Eigen vectors, Properties of Eigenvectors, Cayley-Hamilton Theorem (Inverse and Higher powers of matrix).	08
<b>Unit 3</b>	<b>Numerical Solution of System of Simultaneous Linear Equations:</b> Gauss Elimination Method, Gauss-Jordan Method, Iterative Method – Gauss Jacobi method and Gauss Seidel method, Eigen value using Power method.	06
<b>Unit 4</b>	<b>Statistics and Curve fitting:</b> Method of Least Squares, Fitting of Straight Line, Fitting of Parabola, Fitting of exponential curves, Lines of Regression.	06
<b>Unit 5</b>	<b>Calculus:</b> Taylor's series, Maclaurin's series, Standard expansions, Expansion of function using Standard series, Indeterminate forms.	07
<b>Unit 6</b>	<b>Complex Numbers:</b> De Moivre's theorem, Roots of a complex number, Expansion of $\sin(nx)$ and $\cos(nx)$ in powers of $\sin x$ and/or $\cos x$ , Circular functions of a complex variable, Hyperbolic functions, relation between circular and hyperbolic functions, Inverse Hyperbolic functions.	08



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Text Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Numerical Methods in Engineering & Science	Dr. B.S Grewal	Khanna Publishers	9 <sup>th</sup>	2010
02	Advanced Engineering Mathematics	H.K. Das	S. Chand	22 <sup>nd</sup>	2018
03	A textbook of Applied Mathematics	P.N. Wartikar & J. N. Wartikar	Pune Vidyarthi Griha Prakashan	1 <sup>st</sup>	2008
04	Higher Engineering Mathematics	B.V. Ramana	Tata McGraw Hill Publ.	6 <sup>th</sup>	2010

Reference Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Higher Engineering Mathematics	Dr. B.S. Grewal	Khanna Publishers	44 <sup>th</sup>	2018
02	Advanced Engineering Mathematics	N.P. Bali, Manish Goyal	Infinity science press	7 <sup>th</sup>	2010
03	Advanced Engineering Mathematics	Erwin Kreyszig	Wiley Publishers	10 <sup>th</sup>	2017
04	Numerical Methods	Dr. P. Kandasamy, Dr. K. Thilagavathy, Dr. K. Gunavathi	S. Chand	1st	2010



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Class	F.Y. B. Tech. Sem.-I
Course Code and Course Title	2CSBS102 Applied Physics and Chemistry
Prerequisite/s	-
Teaching Scheme: Lecture/Tutorial	04/ 00
Credits	04
Evaluation Scheme: ISE/MSE /ESE	40/30/30

**Course Outcomes (COs):**After successful completion of this course, the student will be able to:

2CSBS102_1	Apply suitable optical theory to determine wavelength, characteristics and properties of monochromatic and polychromatic sources of light using relevant optical methods of testing.
2CSBS102_2	Calculate the interplaner spacing, lattice constant and properties of unit cell for a given crystal system based on the crystallographic study using laws of material science.
2CSBS102_3	Use concept of Nanotechnology to express Production technique and tools of nano material using different methods and microscopes.
2CSBS102_4	Solve the problems on total hardness of water and calorific values of the fuels by using fundamental equations.
2CSBS102_5	Categorize the given fuels on the basis of their characteristic properties and applications by using recent needs of the industries.
2CSBS102_6	Select engineering materials on the basis of properties and applications with their chemical composition.

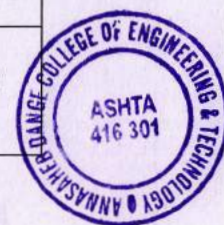
Course Contents:		Hrs.
1	<p><b>Wave optics and Laser:</b></p> <p><b>Diffraction:-</b>Introduction, construction of plane diffraction grating, Diffraction at multiple slits, Determination of wavelength of particular colour using plane diffraction grating, Resolving power of grating, Positive and Negative crystals, Optical activity, Laurent’s Half Shade Polarimeter, Numericals.</p> <p><b>LASER:</b> Introduction to laser, Interaction of radiation with matter- Absorption, Spontaneous emission, Stimulated emission, Pumping- Three level and four level, Population inversion, Metastable state, Laser beam Characteristics, Solid State laser ( Ruby Laser), Industrial and medical applications of laser.</p>	10
2	<p><b>Structure of Solids and its Characterization:</b> Crystalline state, Lattice, Space lattice, Basis and crystal structure, Unit cell, lattice parameters, Crystal system in brief, ( Cubic, Monoclinic... Triclinic), Fourteen Bravais</p>	10

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	<p>lattices, Properties of unit cell (number of atoms per unit cell, coordination number, atomic radius, packing fraction), Calculation of lattice constant( Relation between lattice constant and density), Symmetry elements in cubic crystal, Miller indices:- Procedure, Features and Sketches for different planes.</p> <p><b>X-ray diffraction</b> (Laue method), Bragg's law, Bragg's X-ray diffractometer, Numericals.</p>	
3	<p><b>Nano Physics:</b> Introduction, Concept of nanotechnology, Production techniques:- Top-down (eg. Ball milling) and Bottom-up (eg. Sol-gel process), Tools – Scanning Electron Microscope (SEM) and Atomic Force Microscope (AFM), Applications of nano- materials, Carbon Nano Tube (CNT).</p>	08
	<p><b>Applied Chemistry</b></p>	
4	<p><b>Water Chemistry:</b></p> <p>Introduction, impurities in natural water, Water Testing: Total solids, acidity, alkalinity and chlorides, hardness of water (definition, causes and significance), Calculations of total hardness, disadvantages of hard water. Scale and sludge: formation in boilers and removal, Treatment of hard water by ion exchange process, Desalination of brackish water by Reverse Osmosis.</p>	09
5	<p><b>Energy Science:</b></p> <p>Introduction, classification, characteristics of good fuels, comparison between solid, liquid and gaseous fuels, types of calorific value (higher and lower), Bomb calorimeter and Boy's calorimeter. Numericals on Bomb and Boy's calorimeter. Photo catalysis of water for H<sub>2</sub> generation, introduction to solar cells, biomass energy.</p> <p><b>Batteries:</b> Introduction, Characteristics of a battery, Rechargeable Li- ion batteries (Diagram, charging-discharging reactions, advantages and applications).</p> <p><b>Fuel Cells:</b> Introduction, H<sub>2</sub>-O<sub>2</sub> Fuel cell (Construction, working and applications), applications of fuel cells.</p>	09
6	<p><b>Advanced Materials:</b></p> <p>Metallic materials: Introduction, alloy definition and classification, purposes of making alloys. Ferrous alloys: Plain carbon steels (mild, medium and high), Nonferrous alloys: Nickel alloy (Nichrome), Aluminum alloy (Duralumin and Alnico), Tin alloy (Solder metal).</p>	10

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	<p><b>Polymers:</b> Introduction, plastics, thermo softening and thermosetting plastics, industrially important plastics like phenol formaldehyde, urea formaldehyde. Conducting polymers, biodegradable polymers (preparation, properties and applications).</p> <p><b>Composites:</b> Introduction, composition, properties and uses of fiber reinforced plastics (FRP) and glass reinforced plastic (GRP).</p>	
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**Text Books:**

Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Engineering Physics	P. K. Palanisamy	Sci Tech pub. (P) Ltd.	2 <sup>nd</sup>	2009
02	Engineering Physics	G Vijayakumari	Vikas Pub. House (P) Ltd	3 <sup>rd</sup>	2009
03	Introduction to Nano science and Nanotechnology:	K.K. Chattopadhyay and A.N. Banerjee,	PHI Learning	3 <sup>rd</sup>	2009
04	A Text Book of Engineering Chemistry	S. S. Dara	S. Chand & Co. Ltd., New Delhi.	11 <sup>th</sup>	2008
05	A Text Book of Engineering Chemistry	ShashiChawala	DhanpatRai Publishing Co. New Delhi.	3 <sup>rd</sup>	2007

**Reference Books:**

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
01	Engineering Physics	Resnick Halliday, Krane,	John Wiley & Sons Pub.	8th	2008
02	Introduction to Solid State Physics	Charles Kittle,	Wiley India Pvt. Ltd	7th	2008
03	Solid State Physics:	S. O. Pillai	New Age International Ltd.	6 <sup>th</sup>	2007
04	Engineering Chemistry	Jain & Jain	DhanpatRai Publishing Co., New Delhi.	15 <sup>th</sup>	2010



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Reference Books:					
Sr. No.	Title	Author	Publisher	Edition	Year of Edition
05	Computers and their Applications to Chemistry	Ramesh Kumari	Narosa Publishing House Pvt. Ltd.	2 <sup>nd</sup>	2005



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Class	B. Tech, Sem. I
Course Code & Course Title	<b>2CSPC103- Data Communication</b>
Prerequisite/s	--
Teaching Scheme (Lecture)	3/0
Credits	03
Evaluation Scheme: ISE/MSE /ESE	40/30/30

<b>Course Outcomes (COs):</b> Upon successful completion of this course, the student will be able to:	
2CSPC103_1	Explain the fundamental concepts of data communication such as topologies, standards.
2CSPC103_2	Describe various transmission media for effective communication by using cabling techniques.
2CSPC103_3	Apply the data encoding methods for analog and digital communication using modulation techniques.
2CSPC103_4	Illustrate working of multiplexing and switching methods for serial and parallel communication using switching techniques.
2CSPC103_5	Summarize the functions of each layer in the OSI and TCP/IP reference model using network parameters

<b>Course Contents:</b>		<b>Hrs</b>
<b>Unit 1</b>	Communication Basics: Data Communication– Definition, Components, Data representation, Data Flow Networks–Definition, Uses, Topologies, Categories, The Internet–History, ISP hierarchy, Protocols & Standards– Protocols, Standards, Standards Organizations	<b>07</b>
<b>Unit 2</b>	Transmission media. Guided Media: Twisted pair cable, Coaxial cable, Optical Fiber cable. Unguided Media: Radio waves, Microwaves, Infrared.	<b>07</b>
<b>Unit 3</b>	Data and Signal: Analog & Digital data, Analog & Digital signals, Transmission Impairments, Data Rate Limits, and Performance.	<b>07</b>
<b>Unit 4</b>	Data Encoding: Digital-to-Digital conversion– Line coding, Line Coding Schemes, Block coding, Analog-to- Digital conversion–Pulse code modulation, delta modulation, Digital-to- Analog conversion–ASK, FSK, PSK, Analog-to-Analog conversion–AM, FM, PM.	<b>08</b>
<b>Unit 5</b>	Multiplexing & Switching Parallel and Serial transmission Multiplexing–Frequency, Wavelength, Time-division, Switching–Circuit switched, Datagram Networks, Virtual circuit network, Structure of switches	<b>07</b>
<b>Unit 6</b>	Network Models Network topologies, Categories of Networks, Layered Tasks, The OSI model, Layers in the OSI model, TCP/IP protocol suit.	<b>06</b>

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Text Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Data Communications and Networking	Behrouz A Forouzan	Tata McGraw-Hill	4th	2012
02	Computer Networks	Andrew S. Tanenbaum	Prentice Hall	5th	2011
03	Computer communications and Networking Technologies	Michael A Gallo	Cengage Learning	1st	2001
04	TCP/IP Protocol Suite	Behrouz A. Forouzan	Tata McGraw Hill edition	3 <sup>rd</sup>	2005

Reference Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Data & computer communications	William Stallings	Pearson Education	8th	2011
02	Data communication and computer Networks	Ajit Pal	PIII Learning	1st	2014
03	Computer Networking :Principles, Technologies and protocols of network design –	Natalia Olifer and victor Olifer	Wiley India Edition	1st	2009
04	TCP/IP Volume 1, 2, 3,	W. Richard Stevens	Addison Wesley	1st	2005

Other Books/E-material			
Sr. No	Title	Author	Publisher
01	NPTEL video lectures	NPTEL Author	www.nptel.ac.in
02	E-Notes	Behrouz A. Forouzan	<a href="http://www.mhhe.com/forouzan/dcn4sie">http://www.mhhe.com/forouzan/dcn4sie</a>
03	MCQ Link	Behrouz A. Forouzan	<a href="http://highered.mheducation.com/sites/0072967757/student_view0/chapter1/multiple_choice_quiz.html">http://highered.mheducation.com/sites/0072967757/student_view0/chapter1/multiple_choice_quiz.html</a>



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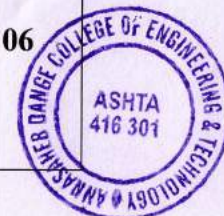
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Class	F.Y. B.Tech., Sem.- I
Course Code and Course Title	<b>2CSES104 Engineering Graphics</b>
Prerequisite	Geometry
Teaching Scheme: Lecture/Tutorial/Practical	02/00/00
Credits	02
Evaluation Scheme: ISE/MSE /ESE	40/30/30

<b>Course Outcomes (COs):</b> Upon successful completion of this course, the student will be able to:	
2CSES104_1	Understand basic concepts of lines in drawing and its application.
2CSES104_2	Sketch projection of simple plane geometries.
2CSES104_3	Sketch projection of solids.
2CSES104_4	Draw the Orthographic projections.
2CSES104_5	Draw the Isometric view of simple objects.
2CSES104_6	Prepare sectional views of solids.

Course Contents:		Hrs.
<b>Unit 1</b>	<p><b>Fundamentals of Engineering Graphics and Projections of Lines</b>  <b>Fundamentals of Engineering Graphics:</b> Introduction to Drawing instruments and their uses. Different types of lines used in drawing practice, Dimensioning system as per BSI.  <b>Projections of Lines:</b> Introduction to First angle and third angle methods of projection. Projections of points on regular and auxiliary reference planes. Projections of lines (horizontal, frontal, oblique and Profile lines) on regular and auxiliary reference planes. True length of a line, Point View of a line, angles made by the line with reference planes. Projections of intersecting lines, Parallel lines, perpendicular lines, and skew lines. Grade and Bearing of a line</p>	06
<b>Unit 2</b>	<p><b>Projections of Planes</b>                      Projections on regular and on auxiliary reference planes. Types of planes (horizontal, frontal, oblique and Profile planes), Edge view and True shape of a Plane. Angles made by the plane with Principle reference planes. Projections of plane figures inclined to both the planes. <b>(Circle &amp; regular polygon).</b></p>	04
<b>Unit 3</b>	<p><b>Projections of Solids</b>                      Projections of Prisms, Pyramids, Cylinder and Cones inclined to both reference planes. <b>(Excluding Frustum and Sphere)</b></p>	04
<b>Unit 4</b>	<p><b>Orthographic Projections-I</b>                      Lines used, selection of views, spacing of views, dimensioning and sections. Drawing required views from given pictorial views (conversion of pictorial views in to orthographic views), including sectional orthographic views.</p>	06



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<b>Unit 5</b>	<b>Isometric Projections</b> Introduction to isometric. Isometric scale, Isometric projections and Isometric views /drawings. Circles in isometric view. Isometric views of simple solids and objects.	<b>04</b>
<b>Unit 6</b>	<b>Sections of solids:</b> Prisms, Pyramids, Cylinders and Cones in simple positions and inclined to one reference plane and parallel to other.	<b>04</b>

<b>Text Books:</b>					
<b>Sr. No</b>	<b>Title</b>	<b>Author</b>	<b>Publisher</b>	<b>Edition</b>	<b>Year of Edition</b>
01	Fundamentals of Engineering	W. J. Luzadder	Prentice Hall of	Revised	1999
02	Machine Drawing	N. D. Bhatt	Charotor Publ. House,	15 <sup>th</sup>	2007
03	Engineering Drawing	Johledhananjay	Tata Mc-Graw Hill	Revised	2011
04	Engineering Drawing and	M. L. Mathur	Jain brothers ,new	Revised	1999

<b>Reference Books:</b>					
<b>Sr. No</b>	<b>Title</b>	<b>Author</b>	<b>Publisher</b>	<b>Edition</b>	<b>Year of Edition</b>
01	Engineering Drawing and Graphics	K. Venugopal	New Age Publication	5 <sup>th</sup>	2004
02	A text book of Engineering Drawing	R. K. Dhawan	S. Chand and Co	Revised	2008
03	Engineering Drawing	N. B. Shaha and B. C. Rana	Pearson Education	2 <sup>nd</sup>	2012
04	Machine Drawing	K. L. Narayana	New Age Publication	-	-



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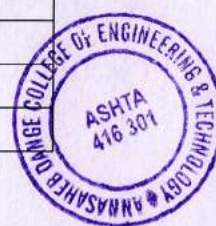
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Class	F. Y. B. Tech. Semester-I
Course Code and Course Title	<b>2CSHS105 Professional Communication Skills</b>
Prerequisite/s	12 <sup>th</sup> Standard English Grammar
Teaching Scheme: Lecture/Practical	0/04
Credits	02
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b> Upon successful completion of this course, the student will be able to:	
2CSHS105_1	Exhibit the skill of sentence construction considering the frame of English language rules accurately for effective and sound communication.
2CSHS105_2	Present their portfolio confidently considering SWOT analysis by using digital tools convincingly as per the corporate expectations.
2CSHS105_3	Write formal letters proficiently by following required techniques that helps in maintaining professional affairs at workplace.
2CSHS105_4	Produce professional presentations proficiently on assigned topics in convincing manner using necessary tools and techniques.
2CSHS105_5	Justify own role in communicative events with balanced zeal, in well-organized manner.

<b>List of Experiments:</b>	
01	Checking My English Communication
02	Self - Introduction
03	Presenting my Career Choices
04	Preparing my Portfolio
05	Understanding Sentence Pattern
06	Avoiding Common Errors
07	Presenting My Portfolio
08	Note Making
09	Getting Smart with Technical Description of charts/ Images/ Processes
10	Delivering Professional Presentation
11	Application and Resume Writing
12	Email Writing
13	GD (General)
14	Introducing Guest/ Friend
15	Extempore
16	GD (Technical)
17	Mock Interview
18	Organizing Event



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Textbooks:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
1	The Professional: Defining the New Standard of Excellence at Work	Subroto Bagchi	Penguin Books India Pvt. Ltd.	Revised Edition	2011
2	Cambridge Guide to IELTS	Pauline Cullen, Amanda French	Cambridge University Press	Reprint	2017
3	A Practical Course in Effective English Speaking Skills	J. K. Gangal	PHI Learning Private Limited, New Delhi	Print	2012
4	Personality Development and Soft Skills	Barun K. Mitra	Oxford University Press, New Delhi, India	Seventh Impression	2012

Reference Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
1	High-school English Grammar and Composition	Wren and Martin	S. Chand and Co., New Delhi	1 <sup>st</sup>	2015
2	The Ace of Soft Skills	Ajai Chowdry, Bala Balchandran	Pearson Publication, Delhi	8 <sup>th</sup>	2013
3	Effective Technical Communication	M. Ashraf Rizvi	Mc Graw Hill Education, Chennai	Second Edition	2017
4	Business Communication	Hory Sankar Mukerjee	Oxford University Press, New Delhi, India	Second Edition	2013



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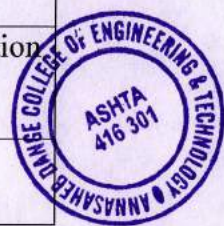
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Class	F.Y. B. Tech. Sem.-I
Course Code and Course Title	<b>2CSBS106-Applied Physics and Chemistry Laboratory</b>
Prerequisite/s	--
Teaching Scheme: Lecture/Tutorial	02/ 00
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes :</b> The students will be able to	
2CSBS106_1	Apply suitable optical theory to calculate wavelength and divergence of monochromatic and polychromatic sources of light using plane diffraction grating.
2CSBS106_2	Calculate band gap energy and Specific rotation for a given semiconductor and sugar solution using appropriate theories and formulae.
2CSBS106_3	Determine quality of a given water sample accurately on the basis of it'shardness, alkalinity, chloride contents by use of principles of volumetric analysis and participate during laboratory.
2CSBS106_4	Analyze given materials accurately for choosing them in domestic and industrial applications with the help of various instruments.
2CSBS106_5	Communicate effectively about laboratory work both orally and writing.
2CSBS106_6	Practice professional and ethical behaviour to carry forward in their life.

<b>List of Experiments:</b>	
It should consist of minimum 10 experiments based on following list.	
01	Plane Diffraction Grating
02	Laurent's Half Shade Polarimeter
03	Wavelength of LASER
04	Divergence of The LASER Beam
05	Seven Crystal System
06	Inverse Square law
07	Determination of alkalinity of water (Acid- Base Titration).
08	Determination of chloride content of water by Mohr's method. (Precipitation Titration).
09	Determination of total hardness of water by EDTA method (Complexometric Titration).



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10	Preparation of urea formaldehyde.
11	Determination of pH of sample solution.
12	Demonstration of H <sub>2</sub> -O <sub>2</sub> fuel cell/ battery.

Text Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
1	Engineering Physics	P. K. Palanisamy	Sci Tech pub. (P) Ltd.	2 <sup>nd</sup>	2009
2	Engineering Physics	G Vijayakumari	Vikas Pub. House (P) Ltd	3 <sup>rd</sup>	2009
3	A Text Book of Engineering Chemistry	S. S. Dara	S. Chand & Co. Ltd., New Delhi.	11 <sup>th</sup>	2008
4	A Text Book of Engineering Chemistry	ShashiChawala	DhanpatRai Publishing Co. New Delhi.	3 <sup>rd</sup>	2007

Reference Books:					
Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Solid State Physics:	S. O. Pillai	New Age International Ltd.	6 <sup>th</sup>	2007
2	Materials Science and Engineering –	V. Raghvan	PHI Learning.	5 <sup>th</sup>	2006
3	Engineering Chemistry	Jain & Jain	DhanpatRai Publishing Co., New Delhi.	16 <sup>th</sup>	2015
4	Industrial Chemistry	B. K. Sharma	Goel publication (P) Ltd.	10 <sup>th</sup>	1999



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Class	F.Y.B. Tech. Sem.-I
Course Code and Course Title	<b>2CSES107-Engineering Graphics Laboratory</b>
Prerequisite/s	Geometry
Teaching Scheme: Lecture/Tutorial/Practical	00/00/02
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs)</b>	
Upon completion of this course, students will be able to	
2CSES107_1	Discuss Basic concept in drawing and applications.
2CSES107_2	Draw the projections the different lines, Planes and Solids in different positions.
2CSES107_3	Draw orthographic and isometric views.
2CSES107_4	Produce drawings with accuracy and proficiency.
2CSES107_5	Display a high degree of certainty in drawings and projections of complex components.

Sr. No.	Title of Sheet
01	Lines, Lettering and Geometrical Constructions.
02	Projections of Straight lines.
03	Projections of Planes.
04	Projection of Solid.
05	Orthographic projections.
06	Orthographic projections along with Sectional view.
07	Isometric projections.
08	Sections of Solids.

<b>Text Books:</b>					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Fundamentals of Engineering Drawing	W. J. Luzadder	Prentice Hall of India.	Revised	1999
02	Machine Drawing	N. D. Bhatt	Charotor Publ. House, Bombay	15 <sup>th</sup>	2007
03	Engineering Drawing	Johledhananjay	Tata Mc-Graw Hill	Revised	2011
04	Machine Drawing with AutoCAD	PohitGoutam	Pearson Edu.	-	2007



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Reference Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Engineering Drawing and Graphics	K. Venugopal	New Age Publication	5 <sup>th</sup>	2004
02	A text book of Engineering Drawing	R. K. Dhawan	S. Chand and Co	Revised	2008
03	Engineering Drawing	N. B. Shaha and B. C. Rana	Pearson Education	2 <sup>nd</sup>	2012
04	Machine Drawing	K. L. Narayana	New Age Publication	-	-
01	Engineering Drawing and Graphics	K. Venugopal	New Age Publication	5 <sup>th</sup>	2004



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Class	F. Y. B. Tech Sem I
Course Code and Course Title	<b>2CSES108-Design Thinking Laboratory</b>
Prerequisite/s	---
Teaching Scheme: Theory/Tutorial/Practical	01/00/02
Credits	01
Evaluation Scheme: ISE	50

Course Outcomes : After successful completion of this course the students will be able to	
2CSES108_1	Apply the design thinking techniques to empathize the customer through arranging survey and/or interview.
2CSES108_2	Identify and Formulate the solution for real world problem using design
2CSES108_3	Create and Exhibit Prototype, for defined problem using design thinking
2CSES108_4	Test developed prototype for defined problem to meet user's requirements.
2CSES108_5	Adapt ethical practices and professional skills to provide a reliable solution for defined real world problem through participating in team activities.

Unit	Content	Hrs.
1	Introduction to Design Thinking, Design Thinking Process	02
2	Empathize Phase: Empathy and Ethics, User Perspective, Activities – Empathy Map, Planning, Persona building.	02
3	Customer Journey Mapping, Observation of stakeholders, Activities – 5 Whys & 1 How.	02
4	Defining and Conceptualization of problem, Ideation, Activities – Story boarding, Brainstorming.	02
5	Prototype – Types, Mindsets, Tools.	02
6	Testing – Scenario, Methods, Refinements & Recommendations.	02

Text Books:					
Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Karmic Design Thinking - A Buddhism-Inspired Method to Help Create Human-Centered Products & Services	Prof. BalaRamadurai,	Self-Published	--	2020
2	Understanding Design Thinking, Lean, and Agile	Jonny Schneider	O'Reilly	---	2017



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3	Introduction to Design Thinking	S. Salivahanan, S. Suresh Kumar, D. Praveen Sam,	Tata Mc Graw Hill,	---	2019
4	Design: Creation of Artifacts in Society	Prof. Karl Ulrich, U. Penn	University of Pennsylvania	--	2011

**Reference Books:**

Sr. No	Title	Author	Publisher	Edition	Year of Edition
1	Design for How People Think	John Whalen	O'Reilly	---	2019
2	Change by Design	Tim Brown	HarperCollins	---	2009
3	Creative Confidence: Unleashing the Creative Potential Within Us All	Kelley, D. & Kelley, T	New York: William Collins	---	2014
4	Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days	Jack Knapp and others	Simon & Schuster	---	2009

**Other Books/E-material**

Sr. No	Title	Instructor	Publisher
01	NPTEL Course- Design Thinking A Primer	Prof. Ashwin Mahalingam & Prof. Bala Ramadurai	www.nptel.ac.in
02	NPTEL Course- Innovation by Design	Dr. B.K. Chakravarthy	www.nptel.ac.in



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List Of Experiments	
Expt. No	Title of the Experiment
1	Identification and Selection of Problems
2	Designing of Empathy Map
3	Customer Survey and Analysis
4	Persona Building
5	Customer Journey Map
6	Defining the problem
7	Poster Presentation
8	Ideation
9	Prototype Building
10	Testing



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Class	F.Y. B.Tech, Sem.-I
Course Code and Course Title	<b>2CSHS109_A Badminton</b>
Teaching Scheme: Lecture	02
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b> Upon successful completion of this course, the student will be able to:	
2CSHS109_A1	Improve physical fitness.
2CSHS109_A2	Understand the basic rules and how they can play the game of badminton.
2CSHS109_A3	Provide opportunities for playing modified games to promote student learning
2CSHS109_A4	Develop students' critical thinking skills, problem solving skills, self-management skills, collaboration skills, risk assessment etc.
2CSHS109_A5	Learn various technical motor skills in badminton and how you can move better in the court.
2CSHS109_A6	Acquiring a satisfactory level of knowledge and experience of the sport, to enable students to play by themselves for recreation.

<b>Course Contents:</b>		
UnitNo.	Title	Hrs.
Unit 1	Introduction to badminton – Aim – Objectives – Short reference in Badminton history Understand the basic rules and how they should play normal game.	04
Unit 2	Skills - Service, Net shot, Clear, Drop, Smash. Skills - Service Forehand & Backhand, Net shot, Drive (Presentation and practice to the court)	06
Unit 3	Skills – Clear, Drop, Smash Implementation of singles rules	05
Unit 4	Footwork 1 Footwork 2	05
Unit 5	Implementation of doubles rules. Forehand strokes. Motor skills practice 1	06
Unit 6	Motor skills practice 2 Motor skills practice 3 Motor skills practice 4	04



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Class	F.Y. B.Tech, Sem.-I
Course Code and Course Title	2CSHS109_B, Volley Ball
Teaching Scheme :Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b>	
Upon successful completion of this course, the student will be able to:	
2CSHS109_B1	To send the ball over the net, according to the regulations, to the ground on the opponents ground
2CSHS109_B2	The ball is put into play through the service right back player within the service zone
2CSHS109_B3	The Ball must hit with one hand or one arm and directly send over the net opponent's court.
2CSHS109_B4	To valley the ball over the net before it touches on the ground
2CSHS109_B5	The playersuse their hands to volley the ball.

<b>Course Contents:</b>		
Unit No.	Title	Hrs.
Unit 1	Introduction & Understand basic volleyball rules, terminology, and scoring procedures.	04
Unit 2	Demonstrate basic skills associated with volleyball, including passing, setting, serving, attacking (spiking), and blocking.	06
Unit 3	Demonstrate the ability to perform individual offensive and defensive skills and strategies.	05
Unit 4	Demonstrate an understanding of the typical game sequencing: serve, pass, attack, defense, transition, and defense.	05
Unit 5	Understand and apply the knowledge of basic rules of volleyball.Skill Practice	06
Unit 6	Demonstrate proper etiquette and good sportsmanship. And Skill related Practice. Skill Practice	04



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Class	F.Y. B.Tech,Sem.-I
Course Code and Course Title	2CSHS109_C,Kabaddi
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b>	
Upon successful completion of this course, the student will be able to:	
2CSHS109_C1	Acquire, analyze and interpret basic skills
2CSHS109_C2	Appraise the rules and regulation.
2CSHS109_C3	Demonstrate and assess various basic skills/techniques and game strategies.
2CSHS109_C4	Develops confidence, concentration and tolerance in players.
2CSHS109_C5	This game also Provides an opportunity for healthy competitions among equal players and help them make friends.

<b>Course Contents:</b>		
Unit No.	Title	Hrs.
Unit 1	Introduction to Kabaddi – Aim – Objectives – Short reference in Kabaddi history Understand the basic rules and how they should play normal game.	04
Unit 2	Demonstrate basic skills associated with Kabaddi, including pushing, Bonus, Tackling, attacking, and blocking	06
Unit 3	Demonstrate an understanding of the typical game sequencing: service, Bonus, attack, defense, Raiding and defense.	05
Unit 4	Demonstrate the ability to perform individual offensive and defensive skills and strategies. Stepping Practice.	05
Unit 5	Skill Demo – Stepping, Bonus, Foot touch, Toe touch, Thrust, Squat leg, Kicks & Practice.	06
Unit 6	Skill Practice And Shadow Practice	04



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Class	F.Y. B.Tech,Sem.-I
Course Code and Course Title	2CSHS109_D, Foot Ball
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

**Course Outcomes (COs):**

Upon successful completion of this course, the student will be able to:

2CSHS109_D1	By applying these principles through active participation, students develop the necessary Skills and knowledge to play football.
2CSHS109_D2	Provides students with opportunities to improve physical fitness acquire knowledge of fitness concepts and practice positive personal and social skills.
2CSHS109_D3	Students will gain an understanding of how a wellness lifestyle affects one's health, fitness and physical performance

**Course Contents:**

Unit No.	Title	Hrs.
Unit 1	Introduction to Football – Aim – Objectives – Short reference in Football history Understand the basic rules and how they should play normal game.	04
Unit 2	Introduce students to the basic skills and knowledge associated with football. Understand basic football rules, terminology, and safety concerns.	06
Unit 3	Demonstrate the basic football skills of passing, three point stance, catching, blocking, hand-offs, punting, the carry and kicking & Practice.	05
Unit 4	Demonstrate the ability to perform individual offensive and defensive skills and strategies.	05
Unit 5	Improve personal fitness through participation in yoga, muscular strength, muscular endurance, and flexibility activities & Practice.	06
Unit 6	Successfully participates in skill improvement and offensive game strategies & Practice	04



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Class	F.Y. B.Tech,Sem.-I
Course Code and Course Title	<b>2CSHS109_E,Bharatnatyam Classical Dance</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b> Upon successful completion of this course, the student will be able to:	
2CSHS109_E1	<b>Interpolation</b> of Indian classical dance forms & basic types of Bharatnatyam.
2CSHS109_E2	<b>Subdivide</b> Bharatnatyam in terms of Nrutt, Nrutya & Nattya.
2CSHS109_E3	<b>Show</b> the perform base on signal & combine hand posture in terms of Ganesh Vandana & Mahalaxmi Ashtak

<b>Course Contents:</b>		
Unit No.	Title	Hrs.
Unit 1	History of Bharatnatyam Dance style & information about all Indian classical dance forms.	01
Unit 2	Basic types of Bharatnatyam :- Tatty Advu, Natty advu, Vishruadvu, KudditMettadvu, Mettadvu, tattikudditmettadvu&Tirmanam (small). Study of NavrasAbhinay. Singal Hand posture , Footwork , Shirobhed(head movement),	10
Unit 3	Combine Hand posture. Meaning of Guruvandna, Ganesh, mahalaxmishlok. Definition of Nrutt, Nrutya&Nattya.	06
Unit 4	Practical session of Ganesh vandnaShlok in classical music.	06
Unit 5	Practice Sessions. & Presentation Of Ganesh vandna	07
Unit 6	History of Bharatnatyam Dance style & information about all Indian classical dance forms.	01



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Class	F.Y. B.Tech,Sem.-I
Course Code and Course Title	<b>2CSHS109_F,Harmonium Classical Music</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b>	
Upon successful completion of this course, the student will be able to:	
2CSHS109_F1	Outline in History Harmonium & different Raags.
2CSHS109_F2	Perform on different songs
2CSHS109_F3	Role play the different music by means of harmonium.

<b>Course Contents:</b>		
Unit No.	Title	Hrs.
Unit 1	History & Introduction of Harmonium.	02
Unit 2	Harmonium presentation of Raag :- Bhoopraag / Bhimpalashraag.	12
Unit 3	Practice sessions.	03
Unit 4	Practice song notations & Harmonium Dhoon (percussion)	08
Unit 5	Practice sessions & students presentations	05
Unit 6	History & Introduction of Harmonium.	02



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Class	F.Y. B.Tech,Sem.-I
Course Code and Course Title	<b>2CSHS109_G,Indian Folk Dance</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b>	
Upon successful completion of this course, the student will be able to:	
2CSHS109_G1	Discuss different types in Indian Folk dance.
2CSHS109_G2	Demonstrate Navras Abhinay, Tribal dance, Dhangari & Lavni dance.
2CSHS109_G3	Compose dance on different folk dance style.

<b>Course Contents:</b>		
Unit No.	Title	Hrs.
Unit 1	Introduction to Indian Folk dance & its forms.	02
Unit 2	Basic steps of folk dance styles.	03
Unit 3	Importance of expressions (Acting) in dance, Navras Abhinay& its types. (9 type of navras)	03
Unit 4	Tribal dance, & its different styles.	06
Unit 5	Practice sessions.	04
Unit 6	History of Dhangari & Lavni dance. Types of dhangari & lavni dance.	01
Unit 7	Steps (dance composition) of Dhangari & Lavni dance.	07
Unit 8	Practice sessions & Students performance	04



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Class	F.Y. B.Tech, Sem-I
Course Code and Course Title	<b>2CSHS109_H, Karaoke Singing.</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

**Course Outcomes (COs):**

Upon successful completion of this course, the student will be able to:

2CSHS109_H1	Understand notation of the songs.
2CSHS109_H2	Perform happy, sad, love devotional, patriotic songs.
2CSHS109_H3	Compose songs in many variations.

**Course Contents:**

Unit No.	Title	Hrs.
Unit 1	Song Notation	04
Unit 2	Happy song / Sad song (classical & semi classical)	08
Unit 3	Love song / Devotional song / Patriotic songs	08
Unit 4	Song composition	05
Unit 5	Practice session & students presentation	05



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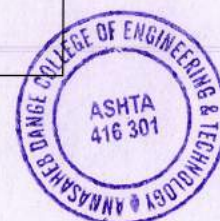
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Class	F.Y. B.Tech., Sem.- II
Course Code and Course Title	<b>2CSBS110 Applied Mathematics-II</b>
Prerequisite	---
Teaching Scheme: Lecture/Tutorial	03/01
Credits	04
Evaluation Scheme: ISE/MSE/ESE	40/30/30

<b>Course Outcomes:</b> After successful completion of this course, the students will be able to:	
2CSBS110_1	Solve problems on partial derivatives by using fundamental concepts of derivative and apply it to find Jacobian, Maxima and Minima of functions of several variables.
2CSBS110_2	Solve Ordinary Differential Equation by using analytical method and numerical techniques.
2CSBS110_3	Use techniques of finite difference and interpolation to compute the value of function for given data.
2CSBS110_4	Utilize the knowledge of vector space, subspace to examine the dimension of four fundamental subspaces.
2CSBS110_5	Apply statistical techniques to interpret the given data.

<b>Course Contents:</b>		<b>Hrs.</b>
<b>Unit 1</b>	<b>Partial Differentiation and Its Applications:</b> Function of two or more variables, Partial derivatives, Change of variables, Euler's theorem, Jacobin, Maxima and minima of functions of two variables.	08
<b>Unit 2</b>	<b>Ordinary Differential Equation (First order and First degree):</b> Linear differential equation, Equation reducible to linear differential equation, Exact differential equation, Equation reducible to exact differential equation.	07
<b>Unit 3</b>	<b>Numerical Solution of Ordinary Differential Equation (First order and First degree):</b> Euler's method, Modified Euler's method, Runge-kutta method, Taylor's series method, Picard's method.	06
<b>Unit 4</b>	<b>Finite Differences and Interpolation:</b> Finite differences, Newton's Interpolation formulae, central difference interpolation formulae (stirling formula), Interpolation with unequal interval (Lagrange's formula)	06
<b>Unit 5</b>	<b>Vector Space:</b> Vector spaces, subspaces, basis, dimension, linear transformation, four fundamental subspaces.	07
<b>Unit 6</b>	<b>Measures of Dispersion:</b> Introduction, Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode, Partition values: Quartiles, Deciles and Percentiles, Concept of dispersion, Range, Quartile Deviation, Mean Deviation, Mean Square Deviation, Variance and Standard Deviation.	08



**Text Books:**

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Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Numerical Methods in Engineering & Science	Dr. B.S Grewal	Khanna Publishers	9 <sup>th</sup>	2010
02	Advanced Engineering Mathematics	H.K. Das	S. Chand	22 <sup>nd</sup>	2018
03	Probability and Statistics for Computer Science	James L. Johnson	Wiley	1st	2008
04	Linear Algebra	Seymour Lipschutz, Marc Lars Lipson	McGraw-Hill	4	2009

**Reference Books:**

Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Higher Engineering Mathematics	Dr. B.S. Grewal	Khanna Publishers	44 <sup>th</sup>	2018
02	Advanced Engineering Mathematics	N.P. Bali, Manish Goyal	Infinity science press	7 <sup>th</sup>	2010
03	Linear Algebra and its Applications	David C. Lay	Pearson	3 <sup>rd</sup>	2007
04	Numerical Methods	Dr. P. Kandasamy, Dr. K. Thilagavathy, Dr. K. Gunavathi	S. Chand	1st	2010



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Class	F.Y. B. Tech, Sem.-II
Course Code and Course Title	<b>2CSPC111 Computer Networks</b>
Prerequisite/s	Data Communication
Teaching Scheme: Lecture/Tutorial/Practical	03/00/00
Credits	03
Evaluation Scheme: ISE/MSE/ESE	40/30/30

<b>Course Outcomes :</b> Upon successful completion of this course, the students will be able to:	
2CSPC111_1	Explain the fundamental concepts of computer network using interconnection methodologies.
2CSPC111_2	Describe the functions of each layer in the OSI and TCP/IP reference model using network parameters.
2CSPC111_3	Apply error detection and correction mechanism for effective data transmission using various error control techniques.
2CSPC111_4	Solve sub netting examples for addressing, routing using CIDR notations.
2CSPC111_5	Make use of networking commands for network administration using different protocols.

<b>Course Contents:</b>		<b>Hrs.</b>
<b>Unit 1</b>	<b>Basics of Computer Network</b> computer Networks, Advantages and Disadvantages of computer Networks, Interconnection Devices: Hub, Bridges, Switch, Routers, Repeater, Gateway, etc.	05
<b>Unit 2</b>	<b>Data Link Layer</b> <b>Error detection &amp; correction:</b> - Introduction- Block coding. Linear block codes, cyclic codes, checksum <b>Data Link Control:</b> - Framing, Flow & error control, Noisy and Noiseless channels Protocols. HDLC protocol. Point to Point Protocol.	09
<b>Unit 3</b>	<b>Network Layer</b> <b>Logical Addressing:</b> IPv4 Addresses: IPv4-Address Space, Notation, classful, classless Addressing, NAT, IPv6 Addresses -Structures, Address Space. <b>Internet Protocol:</b> IPv4, IPv6 , Transition from IPv4 to IPv6	07
<b>Unit 4</b>	<b>Network Layer:</b> Routing Algorithms Network Layer Design Issues, Routing Algorithms - optimality principle, Shortest Path Routing, Flooding, Distance Vector Routing, Link State Routing.	07
<b>Unit 5</b>	<b>Transport layer:</b> Process-to-Process Delivery <b>UDP:</b> Introduction, User Datagram , Services ,LIDP operation, Use of UDP <b>TCP :</b> Services ,Features, Segment, Connection, Flow control, Error Control <b>SCTP:</b> Introduction, Services, Features, Packet Format	07
<b>Unit 6</b>	<b>Application Layer: DNS, FTP, WWW</b>	07



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	<b>DNS:</b> Name space, Domain Name Space, Distribution of Name Space, DNS in the internet, Resolution. DNS message, Types of Records. <b>FTP:</b> Control connection and Data connection <b>WWW:</b> Architecture Web Documents & HTTP	
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Text Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
1	Data Communications and Networking	Behrouz A Forouzan	TataMcGraw-Hill	4 <sup>th</sup>	2012
2	Computer Networks	Andrew S. Tanenbaum	Prentice Hall	5 <sup>th</sup>	2011

Reference Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
1	Data & computer communications	William Stallings	Pearson Education	8 <sup>th</sup>	2011
2	Data communication and computer Networks	Ajit Pal	PHI Learning	1 <sup>th</sup>	2014
3	Computer Networking :Principles, technologies and protocols of network design	Natalia Olifer and victor Olifer	Wiley India Edition	1 <sup>st</sup>	2009
4	Computer Networking: A Top-Down Approach Featuring the Internet	Kurose, J.F. and Ross, K. W.	Addison Wesley	3 <sup>rd</sup>	2004



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Class	F.Y. B. Tech. Semester - II
Course Code and Course Title	<b>2CSES112 Basic Electrical &amp; Electronics Engineering</b>
Prerequisite/s	Simultaneous Linear Equations & Semiconductor Physics
Teaching Scheme: Lecture/Tutorial / Practical	03/ 00/00
Credits	03
Evaluation Scheme: ISE/MSE/ESE	40/30/30

**Course Outcomes (COs):**

After successful completion of this course, the student will be able to:

2CSES112_1	Solve the DC circuits with independent sources using Kirchhoff's laws and Network Theorems.
2CSES112_2	Compute A.C. circuits with an interpretation of the relationship between voltage, current, and power.
2CSES112_3	Explain the types of electrical equipment, machines, and their applications.
2CSES112_4	Discuss the working principles and characteristics of semiconductor devices
2CSES112_5	Construct sequential logic circuits and combinational logic circuits.
2CSES112_6	Explain the elements of communication systems and their devices

Unit	Contents	Hrs.
1	DC Circuits: Electrical circuit elements, KCL and KVL. Star- delta conversion, voltage, and current sources. Thevenin, Norton, and Superposition.	8
2	AC Circuits: Sinusoidal waveforms, peak, average, RMS values, phasor representation real, reactive, and apparent power. Analysis of single-phase, ac circuits consisting of R, L, C, RL, RC, RLC circuits, and three-phase balanced circuits. Voltage and current relations in star and delta.	7
3	Electrical Machines: Construction, Principle of Operation, Basic Equations and Applications of DC Generators, DC Motors, Single Phase Transformer, single phase induction motor, application of stepper, servo, and universal motors. Introduction to Fuse, circuit breakers. Electrical Lamps	7
4	Semiconductor devices and applications: Introduction - Characteristics of PN Junction Diode, Zener Effect – Zener Diode and its Characteristics – Half wave and Full wave Rectifiers –Bipolar Junction Transistor – CB, CE, CC Configurations and Characteristics	7
5	Digital Electronics: Binary Number System – Boolean Algebra theorems– Digital circuits - Introduction to sequential Circuits– Flip-Flops – Registers and Counters – A/D and D/A Conversion	7
6	Communication: Elements of Communication Systems– Modulation and Demodulation: Principles of Amplitude and Frequency Modulations. Digital Communication - Communication Systems: Radio, Antenna, TV, Fax, ISDN, Microwave, Satellite and Optical Fibre (Block Diagram Approach only).	6



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Text Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Principles of Electrical Engineering and Electronics	V. K. Mehta	S. Chand & Co., Publications, New Delhi	3rd	2010
02	Basic Electrical and Electronics Engineering	D.P. Kothari	TMH, New Delhi	2nd	2014
03	Electrical Circuit Theory and Technology	John Bird	Routledge	5th	2013
04	Spice for Circuits and electronics	Muhammad H.Rashid	Cengage India	4th	2019

Reference Books:					
Sr No.	Title	Author	Publisher	Edition	Year of Edition
1	Integrated Electronics	Millman and Halkias	Mc Graw Hill	2	2010
2	Electrical Technology", Vol.- II	A.K. Thereja and B.L. Thereja,	S. Chand & Co., Publications	2	2007
3	Basic Electrical Engineering	U. Bakshi and A. Bakshi	Technical Publications, Pune	1	2005
4	Electronic Principles	Albert Malvino, David Bates	McGraw Hill Education	7	2017

Other Books/E-material				
S. No	Title	Link for online access	Author	Publisher
01	Basic Electrical Circuits	<a href="https://nptel.ac.in/courses/117106108">https://nptel.ac.in/courses/117106108</a>	Dr. Nagendra Krishnapura	NPTEL
02	Electrical Machines	<a href="https://nptel.ac.in/courses/108105155">https://nptel.ac.in/courses/108105155</a>	Prof. Tapas Kumar Bhattacharya	NPTEL
03	Analog Electronic Circuits	<a href="https://nptel.ac.in/courses/108102112">https://nptel.ac.in/courses/108102112</a>	Dr. Shouribrata Chatterjee	NPTEL
04	Digital Circuits	<a href="https://nptel.ac.in/courses/108105113">https://nptel.ac.in/courses/108105113</a>	Prof. Santanu Chattopadhyay	NPTEL



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Class	F.Y. B.Tech, Sem II
Course Code and Course Title	2CSBS113- <b>Biology for Engineers</b>
Prerequisite/s	--
Teaching Scheme: Lecture/Tutorial	02/00
Credits	02
Evaluation Scheme: ISE/MSE/ESE	40/30/30

<b>Course Outcomes (COs):</b> Upon successful completion of this course, the student will be able to:	
2CSBS113_1	Explain the fundamental of cell biology & neural network.
2CSBS113_2	Define the various disorders & infectious diseases.
2CSBS113_3	Explain the biological significance & applied energetics of carbohydrates, lipids, amino acids.
2CSBS113_4	Understand the basics of genetic code & nucleic acids with mechanism of genetic inheritance.
2CSBS113_5	Explain the basics & importance of microbiology with classification & cultivation of bacteria fungi, viruses

<b>Course Contents:</b>		<b>Contact Hrs</b>
<b>Unit 1</b>	<b>Introduction to Biology:</b> History and Significance of Biology; Structure of cell in human body; Functions of Cell;; Classification of living organisms (five Kingdom classification) Levels of structural organization and body systems, Basic life processes, Homeostasis Cell Biology: Definition; Types - Prokaryotic and Eukaryotic cell, Transport across cell membrane; Cell Division.	06
<b>Unit 2</b>	<b>Fundamentals of Nervous Systems:</b> Organization of nervous system; Neuron and Neuroglia; Classification and Properties of nerve fibre; In brief structure and functions of Brain and Spinal cord. Nerve Action Potential, Nerve Impulse- Generation & Conduction	04
<b>Unit 3</b>	<b>Introduction to Pathology:</b> Terminology used in Pathology; Subdivisions of Pathology; Histopathology: Meaning, Technique used in histopathology; Terminological introduction to various disorders- Hypertension, Ischemic heart disease, Arteriosclerosis, COPD, Renal Failure, Anemia, Diabetes mellitus, Epilepsy, Depression, Peptic Ulcer, Infectious diseases - Typhoid, Leprosy, Tuberculosis, AIDS,	04
<b>Unit 4</b>	<b>Biomolecules and Enzymes:</b> Introduction, Classification, Chemical nature and Biological role of Carbohydrate, Lipids, Nucleic acids, Amino acids; Concept of free energy, Endergonic and Exergonic reaction Glycolysis and Citric acid cycle – Pathway, Energetics and Significance. Introduction, properties, and IUB classification of Enzymes. Functions of Enzyme Regulation of enzymes: enzyme induction and repression	06



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<b>Unit 5</b>	<b>Genetics, Genetic Information Transfer and Inheritance:</b> Introduction to Chromosomes, Genes, DNA, RNA, Organization of mammalian genome. Structure & Functions of DNA and RNA. Sex determination– In humans, <b>Inheritance:</b> Mechanisms of inheritance, Unifactorial Inheritance, Multifactorial inheritance, Sex-linked Inheritance.	04
<b>Unit 6</b>	<b>Microbiology:</b> Introduction, History, Branches, Scope and importance of Microbiology. Introduction to Prokaryotes and Eukaryote Study of ultra-structure and morphological classification and cultivation of bacteria, fungi and viruses.	04

<b>Text Books:</b>					
<b>Sr. No</b>	<b>Title</b>	<b>Author</b>	<b>Publisher</b>	<b>Edition</b>	<b>Year of Edition</b>
01	Concept of Cell Biology	P. S. Verma and V. K. Agarwal	S. Chand and Company Ltd	-	2002
02	A Text book of Zoology	R. D. Vidyarthi and P. N. Pandey	S. Chand and Company Ltd	-	2004
03	Practical Book of Biochemistry	Surya Prakash	NiraliPrakashan	-	2018
04	A & P Textbook of Microbiology	<u>R. Ananthanarayan</u>	Orient Black Swan;	9th	2013



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Reference Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Principles of Anatomy & Physiology	Gerard J. Tortora	John Wiley & Sons	14 <sup>th</sup>	2014
02	Textbook of Pathology	Harsh Mohan	Jaypee Brothers Medical Publishers (P) Ltd	6 <sup>th</sup>	2010
03	Biochemistry	U. Satyanarayan	Books & Allied (P) Ltd, Kolkata	5 <sup>th</sup>	2017
04	Lehninger Principles of Biochemistry	David L. Nelson	W H Freeman & Co	6 <sup>th</sup>	2012
05	Microbiology	Pelczar Jr., M J, Chan, E C S and Krieg, N R	McGraw-Hill	1 <sup>st</sup>	2012



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Class	F.Y. B. Tech, Sem.-II
Course Code and Course Title	<b>2CSPC114 Computer Networks Laboratory</b>
Prerequisite/s	---
Teaching Scheme: Lecture/Tutorial/Practical	00/00/02
Credits	01
Evaluation Scheme: ISE	100

<b>Course Outcomes :</b> Upon successful completion of this course, the students will be able to:	
2CSPC114_1	Simulate, configure and analyze the network using network analyzer tools.
2CSPC114_2	Demonstrate the installation and various features of computer network simulation tools.
2CSPC114_3	Demonstrate the communication between computer nodes using TCP/UDP socket.
2CSPC114_4	Propose LAN Design and make use of various network troubleshooting commands.
2CSPC114_5	Test performance of various networking protocols.

<b>Experiment List:</b>	
1	Design types of Network cables and Practically implement the cross-wired cable and straight through cable using clamping tool.
2	Configure Host IP, Subnet Mask and Default Gateway in a System in LAN (TCP/IP Configuration)
3	Make use of basic network command and Network configuration commands.
4	Installation of Cisco Packet tracer tool.
5	Configuring and Working of networking control devices using cisco packet tracer tool
6	Design a topology of Computer Networks using cisco packet tracer tool.
7	Design a LAN by using cisco packet tracer tool.
8	Implementation of CRC and Hamming Code.
9	Implementation of TCP Socket program.
10	Implementation of UDP Socket program.
11	DNS, SMTP, FTP, and WEB Server configuration in packet tracer
12	Installation of network analyser tool (Wireshark). Wireshark Lab: HTTP, DNS
13	Case study: To study network of any organization and submit report



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<b>Text Books:</b>					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
1	Computer Networks	Andrew S. Tanenbaum	Prentice Hall	5 <sup>th</sup>	2011
2	Cisco Packet Tracer for Beginners	KalyanChinta	CCNA	--	--

<b>Reference Books:</b>					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
1	Networking	Jeffery S. Beasley	NewRidersPress.	2	2011
2	Computer Networks	Larry L. Peterson, Bruce S. Davie	Morgan Kaufmann	5	2011
3	TCP/IP Volume 1,2,3	W. Richard Stevens	Wiley India Edition	5	2015
4	TCP/IP and Network Security	Dr. B. B. Meshram	Shroff Publishers	2	2016



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Class	F.Y. B. Tech. Semester - II
Course Code and Course Title	<b>2CSES115 Basic Electrical &amp; Electronics Engineering Laboratory</b>
Teaching Scheme: Lecture/Tutorial / Practical	00/ 00/02
Credits	01
Evaluation Scheme: ISE / ESE	25/50

<b>Course Outcomes (COs):</b>	
After successful completion of this course, the student will be able to:	
CSES115_1	Apply the knowledge of network solution techniques and theorems to solve a variety of electrical circuits and Experiment on linear DC and AC electrical circuits.
CSES115_2	Plot various characteristics of semiconductor devices and demonstrate its operation
CSES115_3	Demonstrate digital electronics circuit on experimental set ups and verify its logical operations
CSES115_4	Tabulate observations and communicate conclusions and results in oral as well as written form
CSES115_5	Acquire experience of working individually as well as a team in designing, building and troubleshooting simple analog electronic circuits

<b>Name of the Experiment</b>
<ol style="list-style-type: none"> <li>1. Verification of Ohm's law.</li> <li>2. Verification of Kirchhoff's current law.</li> <li>3. Verification of Kirchhoff's voltage law.</li> <li>4. Measurement of Energy in single phase resistive load circuit.</li> <li>5. Measurement of Power in single phase resistive load circuit.</li> <li>6. Transformation ratio of a single phase transformer at different loads.</li> <li>7. Determination of R.M.S. Values of a sinusoidal waveform.</li> <li>8. Verification of PN junction diode characteristics under both forward and reverse bias. 9. Verification of Zener diode characteristics under reverse bias.</li> <li>10. Determine input and output characteristics of CB Configuration of Transistor.</li> </ol>

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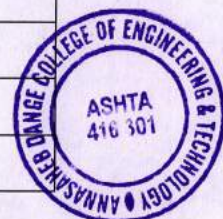


Class	F.Y. B.Tech, Sem II
Course Code & Course Title	<b>2CSBS116 Biology for Engineers Laboratory</b>
Prerequisite/s	--
Teaching Scheme (Lecture/Tutorial/Practical)	0/0/2
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs)</b> Students will be able to:	
2CSBS116_1	Make use of different equipment's used in microbiology.
2CSBS116_2	Identify the carbohydrates & proteins by using various chemical tests.
2CSBS116_3	Determine salivary amylase activities on starch.
2CSBS116_4	Understand the concepts of sub culturing of bacteria, fungi and its staining techniques or methods.
2CSBS116_5	Perform different biological experiments.
2CSBS116_6	Follow professional and ethical principles during laboratory work in a team for laboratory activities.

**List of Experiments:** It should consist of minimum 8-10 experiments based on following list.

1.	Study of Microscope
2.	Study of nervous system using specimen, models, etc.
3.	Qualitative analysis of Carbohydrates (Glucose, Fructose, Lactose, Maltose, Sucrose and starch)
4.	Identification of Proteins (albumin and Casein)
5.	Study of enzymatic hydrolysis of starch.
6.	Determination of Salivary amylase activity.
7.	Study of different equipment's and processing, e.g., B.O.D. incubator, laminar flow, aseptic hood, autoclave, hot air sterilizer, deep freezer, refrigerator, microscopes used in experimental microbiology.
8.	Sterilization of glassware, preparation and sterilization of media.
9.	Sub culturing of bacteria and fungus. Nutrient stabs and slants preparations
10.	Staining methods- Simple, Grams staining.
11.	Staining methods-Acid fast staining.
12.	Preparation of permanent slides of organs.



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Text Books:				
Sr. No	Title	Author	Publisher	Year of Edition
01	Concept of Cell Biology	P. S. Verma and V. K. Agarwal	S. Chand and Company Ltd	2002
02	A Text book of Zoology	R. D. Vidyarthi and P. N. Pandey	S. Chand and Company Ltd	2004
03	Practical Book of Biochemistry	Surya Prakash	NiraliPrakashan	2018
04	A & P Textbook of Microbiology, 9 <sup>th</sup> Edition	<u>R. Ananthanarayan</u>	Orient BlackSwan;	2013

Reference Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Principles of Anatomy & Physiology	<u>Gerard J. Tortora</u>	John Wiley & Sons	14 <sup>th</sup>	2014
02	Textbook of Pathology	Harsh Mohan	Jaypee Brothers Medical Publishers (P) Ltd	6 <sup>th</sup>	2010
03	Biochemistry	U. Satyanarayan	Books & Allied (P) Ltd, Kolkata	5 <sup>th</sup>	2017
04	Lehninger Principles of Biochemistry	David L. Nelson	W H Freeman & Co	6 <sup>th</sup>	2012
05	Microbiology	Pelczar Jr., M J, Chan, E C S and Krieg, N R	McGraw-Hill	1 <sup>st</sup>	2012



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Class	F.Y. B.Tech, Sem II
Course Code and Course Title	<b>2CSES117- Computer Programming</b>
Prerequisite/s	--
Teaching Scheme: Lecture/Tutorial/Practical	2/0/4
Credits	04
Evaluation Scheme: ISE /ESE	50/50

<b>Course Outcomes (COs):</b> Upon successful completion of this course, the student will be able to:	
2CSES117_1	Prepare an algorithm and draw a flowchart to accurately solve various mathematical problems by using structured approach.
2CSES117_2	Apply the fundamental concepts like data types, operators to solve mathematical problems by using the C language.
2CSES117_3	Apply the decision and looping constructs to solve the problems related to decision, repetitive statements for real time problem statement using C
2CSES117_4	Develop a C program to demonstrate the modular approach by using the concept of function, structure and pointer
2CSES117_5	Design and exhibit micro project on real time problems by using C language.

<b>Course Contents:</b>		
Unit 1	<b>Basics of Programming</b> The meaning of algorithms, Flowcharts, Pseudo codes, Writing algorithms and drawing flowcharts for simple exercises, Memory concepts, C Program development environment.	03
Unit 2	<b>C Fundamentals</b> Importance of 'C' Language, History, Structure of 'C' Program, Sample 'C' Program, Constants, variables and data types, Enumeration. Operators and expressions, Managing input / output operations, Control statements- Decision making, Case control & Looping Constructs.	07
Unit 3	<b>Array</b> The meaning of an array, one dimensional and two dimensional arrays, declaration and initialization of arrays, reading , writing and manipulation of above types of arrays, multidimensional arrays. Strings-Declaring and initialing character array, reading and writing string to/from terminal, arithmetic operations on characters, putting strings together, string handling functions.	04
Unit 4	<b>Functions</b> Need of user defined functions, elements of User defined functions, defining functions, return values and their types, function calls, function declaration, methods of parameter passing, Scope rule of functions, user defined and library functions.	04



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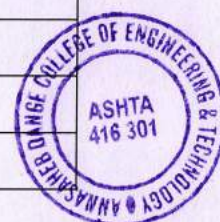
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Unit 5	<p><b>Structure &amp; Pointers</b>                  Need of Structure, Defining a structure, declaring and accessing structure variables, structure initialization, copying and comparing structure variables, array of structures, structures and functions, Unions.                  Understanding pointers, accessing the address space of a variable, declaring and initialization pointer variables, accessing a variable through its pointer, pointer expressions, pointers and arrays, pointer and character strings, pointer and structure, Void pointer and generic pointer, null pointer, dangling pointer, pointer to a function, Calling A function through function pointer.                  Dynamic memory allocation malloc() ,calloc() ,realloc(),free(),Core dump ,Memory leak.</p>	06
Unit 6	<p><b>File Handling</b>                  Defining and opening a file, closing a file, input/output operations on files, error handling during I/O operations, random access files, command line arguments, C preprocessor.</p>	04

Experiment List:	
1	Write an algorithm for given problem statement.
2	Draw a flowchart for given problem.
3	Program using different data types and operators in C.
4	Program using different operators and demonstration of operator precedence.
5	Program using if and if else construct.
6	Program using if else ladder and nested if else.
7	Program using switch case.
8	Program to demonstrate looping constructs (while and for loops)
9	Program to demonstrate looping constructs (do while and nested loops)
10	Program to demonstrate one dimensional array
11	Program to demonstrate two-dimensional array
12	Implement a program to demonstrate String handling functions.
13	Implement a program to demonstrate user defined functions.
14	Program to demonstrate concept of recursion (factorial, Fibonacci)
15	Program to demonstrate concept of structures in C.
16	Program to demonstrate concept of array of structures in c.
17	Program to demonstrate pointers in C.



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18	Program to demonstrate pointers arithmetic in C.
19	Program to demonstrate function pointer.
20	Implement a program to demonstrate file handling.
21	Program to demonstrate command line arguments.

Text Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	Programming And Problem Solving Using C Language	ISRDR Group	McGraw-Hill Publications	-	2012
02	Let Us C	Yashwant Kanetkar	BPB	3rd	2011
03	C How to Program	Harvey M. Deitel , Paul J. Deitel, Abbey Deitel	Pearson	2nd	2009
04	Programming in ANSI C	E. Balguruswamy	Tata Mc-Graw Hill	4th	2008

Reference Books:					
Sr. No	Title	Author	Publisher	Edition	Year of Edition
01	The 'C' Programming Language	D. M. Ritchie	Pearson	2nd	1998
02	C Programming Laboratory: Handbook for Beginners	Sidnal	Wiley India Limited	1st	2012
03	Understanding pointers in C	Yashwant Kanetkar	BPB Publications	4th	2001
04	Test your C Skills	Yashwant Kanetkar	BPB Publications	5th	2013



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Class	F.Y. B.Tech, Sem.-II
Course Code and Course Title	<b>2CSHS118_A, Table –Tennis</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

**Course Outcomes (COs):** Upon successful completion of this course, the student will be able to:

2CSHS118_A1	The students define table tennis game.
2CSHS118_A2	Willingly participates in Table Tennis as a component of an active lifestyle.
2CSHS118_A3	The students explain foot- work in forehand and backhand spin.

**Course Contents:**

Unit No.	Title of Experiments	Hrs.
<b>Unit1</b>	Introduction & Understand basic Table Tennis rules, terminology, safety concerns, and scoring procedures.	<b>04</b>
<b>Unit2</b>	Demonstrate proper court etiquette and good sportsmanship.	<b>06</b>
<b>Unit3</b>	Demonstrate basic skills associated with table tennis including forehand, backhand, spins, grips & serves.	<b>05</b>
<b>Unit4</b>	Demonstrate Exposition and Applying forehand and backhand straight strike.	<b>05</b>
<b>Unit5</b>	Assess current personal fitness levels & Practice.	<b>06</b>
<b>Unit6</b>	Use a variety of stroke placements to keep opponent moving during a table tennis match.Practice.	<b>04</b>



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Class	F.Y. B.Tech,Sem.-II
Course Code and Course Title	2CSHS118_B,Kho-Kho
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b> Upon successful completion of this course, the student will be able to:	
2CSHS118_B1	Helps In Motor Development.
2CSHS118_B2	It helps in social and mental development of the student
2CSHS118_B3	Kho-Kho helps the student to off depression, anxiety, stress and, increase self-esteem.
2CSHS118_B4	It develops team spirit and leadership skill.
2CSHS118_B5	It improves physical fitness.

<b>Course Contents:</b>		
Unit No.	Title of Experiments	Hrs.
Unit1	Introduction to Kho-Kho – Aim – Objectives – Short reference in Kho-Kho history Understand the basic rules and how they should play normal game.	04
Unit2	Demonstrate basic skills associated with Kho-Kho, including Fundamental Skills. Chasing Skills- a)Giving Kho b) Taking Direction c) Sudden Change d) Tapping	06
Unit3	Demonstrate basic skills associated with Kho-Kho, including Fundamental Skills. Chasing Skills-e)Turning Round the Post f) Trapping g) Diving h) Fake Kho i) Late kho& Practice.	05
Unit4	Demonstrate basic skills associated with Kho-Kho, including Running Skills Position on the court b) Avoiding Trapping c) Positioning near post d) Dodging	05
Unit5	Demonstrate basic skills associated with Kho-Kho, including Running Skills e)Front Dodge f) Back Dodge c) Round the post dodge & Practice	06
Unit6	Kho-Kho Skills Practice & Matches.	04



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Class	F.Y. B.Tech,Sem.-II
Course Code and Course Title	<b>2CSHS118_C-Basket Ball</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b>	
Upon successful completion of this course, the student will be able to:	
2CSHS118_C1	<b>Introduce</b> students to the basic skills and knowledge associated with basketball.
2CSHS118_C2	<b>By applying</b> these principles through active participation, students develop the necessary skills and knowledge to play basketball
2CSHS118_C3	<b>Provides</b> students with opportunities to improve physical fitness, acquire knowledge of fitness concepts and practice positive personal and social skills
2CSHS118_C4	Students <b>will gain</b> an understanding of how a wellness lifestyle affects one's health, fitness and physical performance.

<b>Course Contents:</b>		
Unit No.	Title of Experiments	Hrs.
<b>Unit1</b>	Introduction & Understand basic basketball rules, terminology, and safety concerns.	<b>04</b>
<b>Unit2</b>	Demonstrate the six basic basketball skills of a) Running b) Jumping c) Passing d) catching e) Dribbling and f) Shooting.	<b>06</b>
<b>Unit3</b>	Demonstrate the ability to perform individual offensive and defensive skills and strategies.	<b>05</b>
<b>Unit4</b>	Understand and apply the knowledge of basic rules of basketball. Skills Practice.	<b>05</b>
<b>Unit5</b>	Demonstrate proper etiquette and good sportsmanship. Successfully participates in skill improvement and offensive game strategies.	<b>06</b>
<b>Unit6</b>	Identify and apply injury prevention principles related to aerobic activities. Practice & Matches.	<b>04</b>



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Class	F. Y. B.Tech,Sem.-II
Course Code and Course Title	<b>2CSHS118_D,Hand Ball</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

**Course Outcomes (COs):**

Upon successful completion of this course, the student will be able to:

2CSHS118_D1	The student has a <b>basic knowledge</b> of the team values of sports games
2CSHS118_D2	<b>Acquainting</b> with the characteristics and trends in the development of the discipline.

**Course Contents:**

Unit No.	Title of Experiments	Hrs.
<b>Unit1</b>	Introduction & Understand basic Handball rules, terminology, and safety concerns.	<b>04</b>
<b>Unit2</b>	Health and safety rules. Rules for obtaining credit for the course, Reminder of the history, methodology and basic rules of the game, Exercises to improve passing, grips and throws. The game. Reminder of the refereeing rules.	<b>06</b>
<b>Unit3</b>	Improving the technique of passing and grips in a team setting. Individual ways of freeing oneself from the opponent and the organization of positional attacks with their use	<b>05</b>
<b>Unit4</b>	Exercises improving feints and individual defense technique. Everyone's defense system. Principles of individual defense & Practice.	<b>05</b>
<b>Unit5</b>	Improving the technique of passing and grips in a team setting. Individual ways of freeing oneself from the opponent and the organization of positional attacks with their use. The game & Practice.	<b>06</b>
<b>Unit6</b>	Identify and apply injury prevention principles related to aerobic activities. Practice & Matches	<b>04</b>



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Executive Director

Class	F. Y. B.Tech,Sem.-II
Course Code and Course Title	<b>2CSHS118_E,Katthak Classical Dance</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

<b>Course Outcomes (COs):</b>	
Upon successful completion of this course, the student will be able to:	
2CSHS118_E1	Explain Importance of katthak with respect to Indian culture.
2CSHS118_E2	Demonstrate Guruvandana, Tatkar.
2CSHS118_E3	Compose Katthak dance with consideration of classical & semi classical music.

<b>Course Contents:</b>		
Unit No.	Title	Hrs.
<b>Unit 1</b>	Introduction to Classical dance katthak& its importance.	<b>01</b>
<b>Unit 2</b>	Guruvandana & Tatkaar.( teen taal)	<b>03</b>
<b>Unit 3</b>	Chakri & Hast-sanchalan	<b>03</b>
<b>Unit 4</b>	Tode. (Tigida-tigdig-thai)	<b>03</b>
<b>Unit 5</b>	Practice sessions.	<b>02</b>
<b>Unit 6</b>	Paran & Tihaei	<b>05</b>
<b>Unit 7</b>	Classical dance on Song	<b>05</b>
<b>Unit 8</b>	Practice sessions.	<b>08</b>



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Class	F.Y. B.Tech,Sem.-II
Course Code and Course Title	<b>2CSHS118_F,Tabla Classical Instruments</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

**Course Outcomes (COs):**

Upon successful completion of this course, the student will be able to:

2CSHS118_F1	Discover History of table wadan.
2CSHS118_F2	Demonstration of different Taal in table wadan.
2CSHS118_F3	Develop notation on new music with help of table wadan.

**Course Contents:**

Unit No.	Title	Hrs.
Unit1	History & Introduction to TablaWadan.	01
Unit2	Tabla presentation of Taal. Tritaal/ Dadra/ Zaptaal/ Kerwa/ Bhajni	05
Unit3	Practice sessions.	06
Unit4	Practice with notation ,& Set one song with tabla	08
Unit5	Practice sessions & students presentations.	10



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Class	F.Y. B.Tech,Sem.-II
Course Code and Course Title	2CSHS118_G,Western Dance
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

**Course Outcomes (COs):**

Upon successful completion of this course, the student will be able to:

2CSHS118_G1	<b>Describe</b> History of Western dance & basic of western dance.
2CSHS118_G2	<b>Organize</b> western dance individually as well as group with help of western music.
2CSHS118_G3	<b>Compose</b> western dance on songs.

**Course Contents:**

Unit No.	Title	Hrs.
Unit1	History of Western dance style & information about western dance.	02
Unit2	Basic types of western dance: - worm-up, Hand- legs movements.	04
Unit3	Teaching Basic style (focus on dance / music / movements, how to control body, emotion/feeling of music/ dance.)	06
Unit4	Training western dance with music (original dance form of western, free style dance)	08
Unit5	Dance composition.	05
Unit6	Practice session , & Students Presentation	05



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Class	F. Y. B.Tech,Sem.-II
Course Code and Course Title	<b>2CSHS118_H,Yoga</b>
Teaching Scheme: Lecture/Tutorial	02/00/00
Credits	01
Evaluation Scheme: ISE	50

**Course Outcomes (COs):**

Upon successful completion of this course, the student will be able to:

2CSHS118_H1	Discus importance of Yoga with respect to different forms of exercise.
2CSHS118_H2	Perform Different styles of Yoga.

**Course Contents:**

<b>Unit1</b>	Introduction , importance of yoga, Basic exercise, sun salutation, shavasana taught yogic & excises types	<b>06</b>
<b>Unit2</b>	Omkar& sleeping position seats (aasn yogic excise type)to teach omkar in a scientific way, to teach mercatasan , makrasan, setubandhan,	<b>04</b>
<b>Unit3</b>	Opposite sleeping position. Shalabhasan, chakras an, Bhungasan, Makrasan.Pranayam;- Anulom-Vilom,,Bhasarika, Sheetkari, Bhramari, shitalipranayam. Rapid respiration(jaladshwasan )	<b>05</b>
<b>Unit4</b>	Practice sessions	<b>05</b>
<b>Unit5</b>	Seats in the sitting position:- padmasan, Wajrasan, Wakrasan, Ardh-machindrasana, Urshtrasan.	<b>04</b>
<b>Unit6</b>	Seats in Fine Position. (Dandstithi):- Ekpaadvrukrashasan, Veerasan, Patangasan, Trikonasan.	<b>06</b>



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